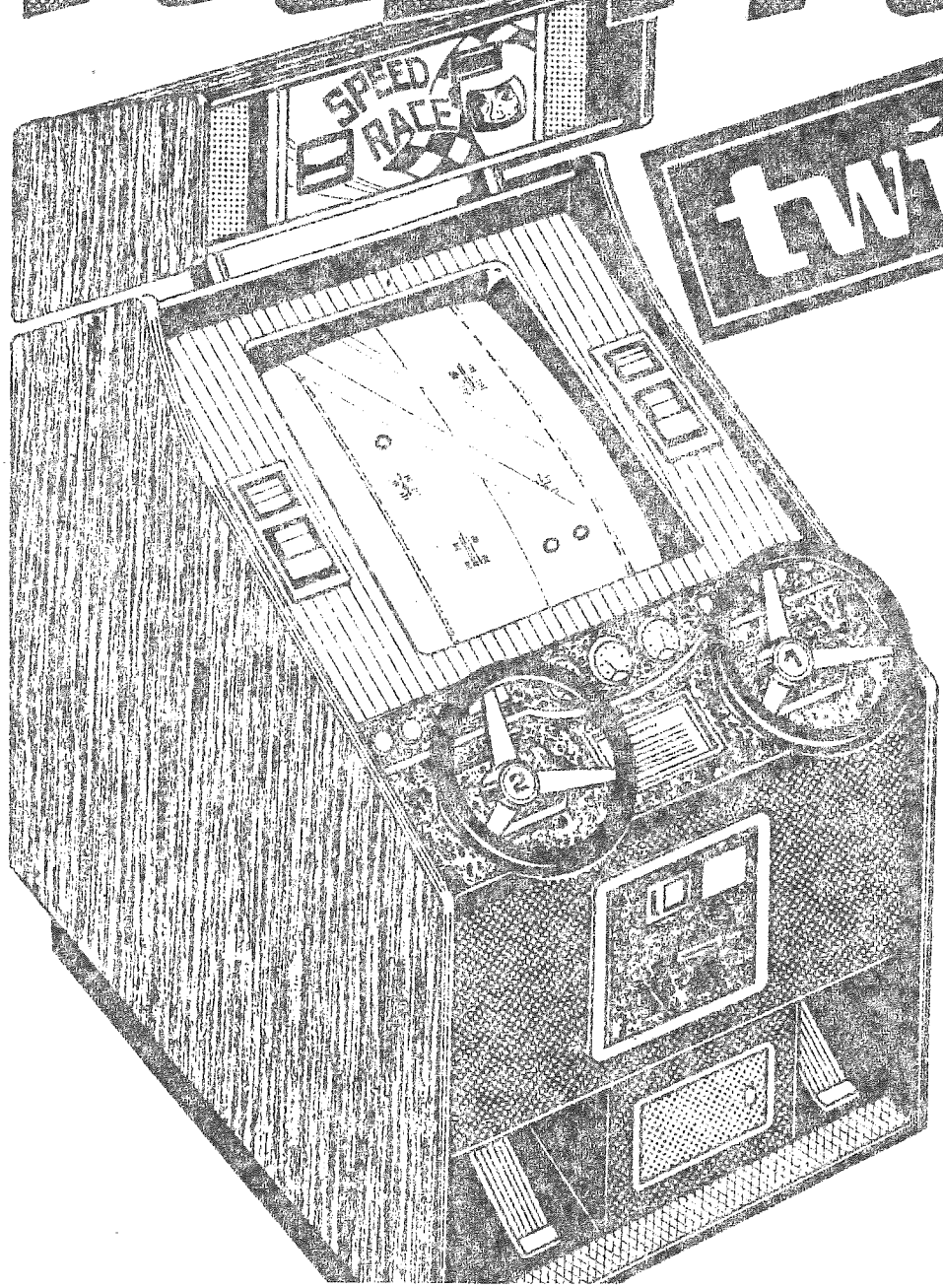
SPEED RACE

twin



SERVICE INSTRUCTIONS AND PARTS CATALOG

TAITO

TAITO CORPORATION

STO70014

Name of Part

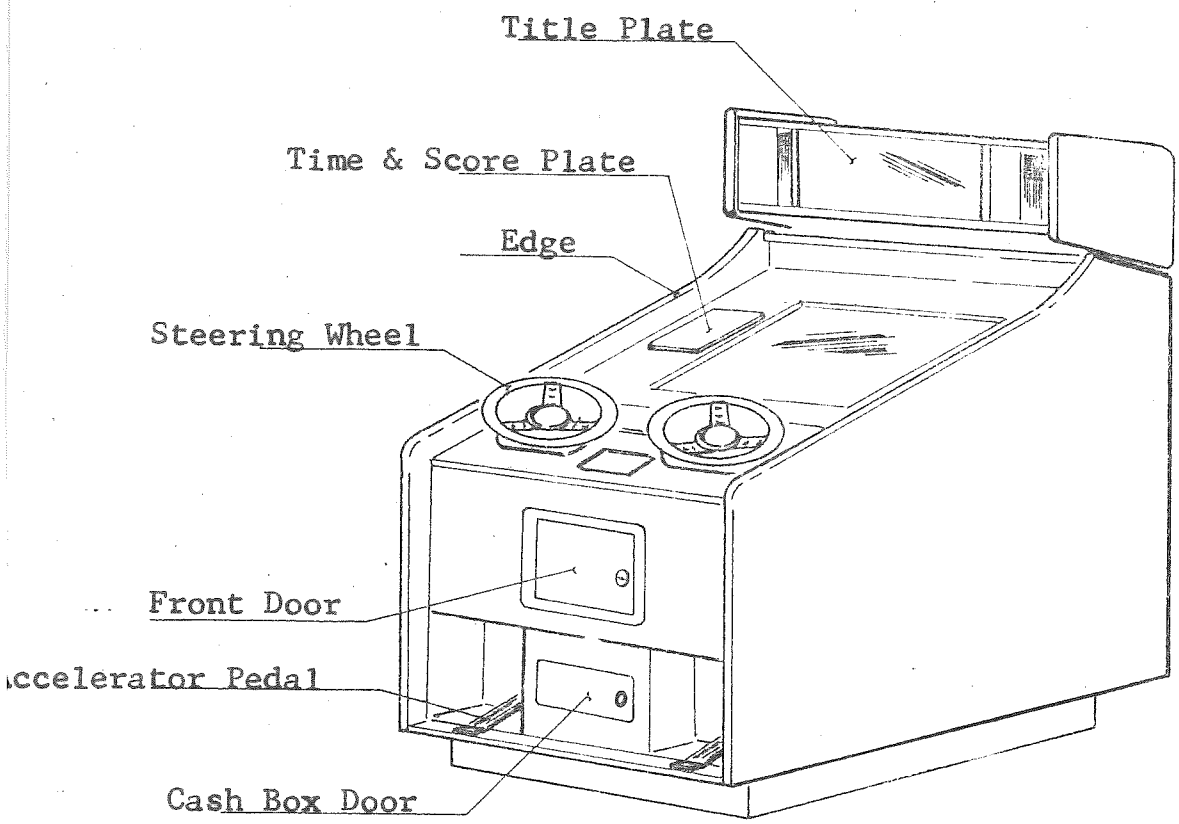


Fig. 1

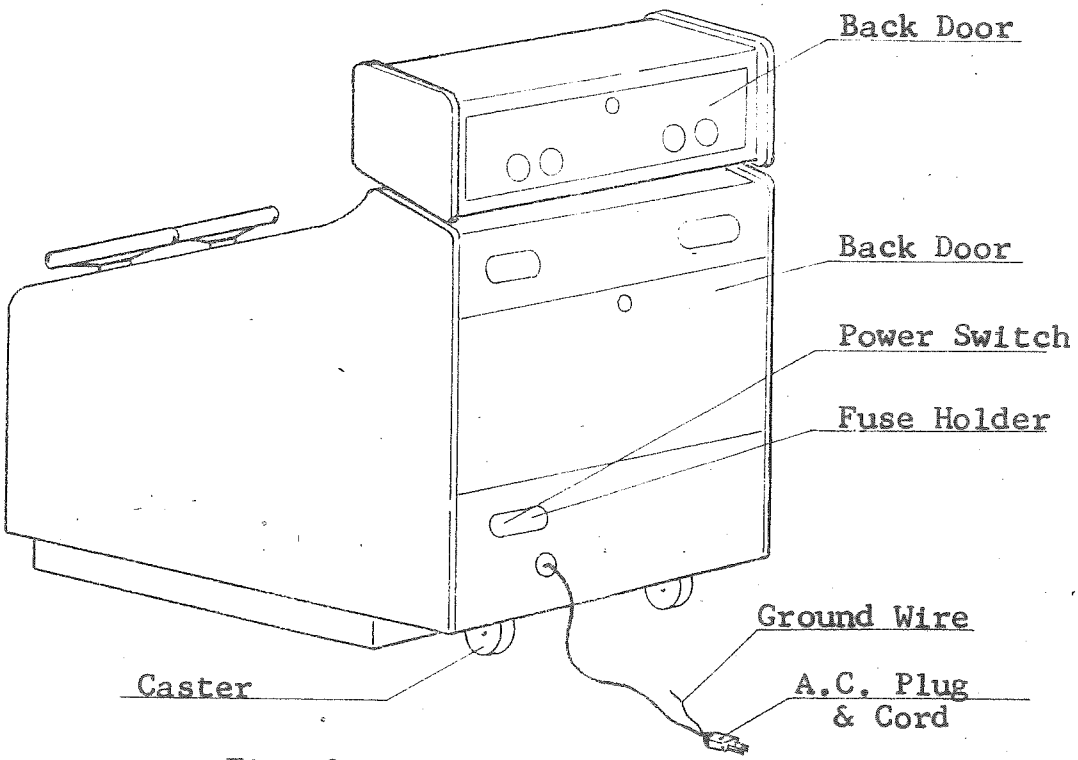


Fig. 2

1. Transportation and Installation

- Avoid rough handling during transportation; the picture tube is fragile.
- Avoid installation in location with exposure to direct sunlight or excessive heat in order to avoid damage from high internal temperatures.
- Connect ground wire and A.C. plug prior to switching on the power.

Note:

- Erroneous or partial scores may appear when the machine is first switched on. This is typical of solid-state circuitry and will correct itself automatically when the first game is started.

Warning:

- Taito SPEED RACE TWIN uses the latest solid-state circuitry for long life, however, as with all sophisticated electronic equipment certain precautions must be observed to prevent damage:

  (1) Do not attempt to service with ordinary test equipment or the internal voltage of the test equipment may cause damage of ICs.

  (2) Assure proper ventilation. Do not expose to temperatures above 60°C.

  (3) Do not connect or disconnect any internal receptacles without first switching off the power.

2. Playing Instructions

- One or two player game

Standard play pricing is;

one coin ---------- one play for one-player game,
two coins --------- one play for two-player game, and
three coins ------- two plays for two-player game.

Press the credit button to start the second play.

One-player game:

- When a coin is inserted, your car will appear on lower right side of the screen. With the right-hand steering wheel (for the first player), drive your car.
- After appearing your car, a pace-making car will appear on lower left side of the screen, which is programed to drive automatically.
- When the accelerator pedal is depressed, your car will move forward up to a given point. The continuous acceleration to the maximum can be made by depressing the accelerator pedal.
- When your car enters the course, the guard rail will appear on the right side of the course.
- When crashed with the left and right guard rails or the other racing cars, your car turns back to the start point.
- When crashed with the pace-making car, preceeding car remains running and succeeding car turns back to the start point.
- When crashed with the obstacle tyre which appears on the course at certain intervals, your car is repelled.
- If you turn the steering wheel on the slipping zone (black zone), your car will be slipped aside.
- Socre increases by driving on the course. If crashed, the score not begins to increase soon when your car enters the course again.
- The higher the speed, the higher the score.
- Playing time will be extended at each score 2,000, 4,000, or 6,000. In this case, the timer begins to count down from 90 after it reaches 00, but the speed of the count-down triples.
- The number of racing cars increases when the score reaches 1,000 points.

Two-player game:

- When two coins are inserted, both player cars will appear on both lower sides of the screen. The left car can be driven by the left-hand steering wheel, and vice versa.

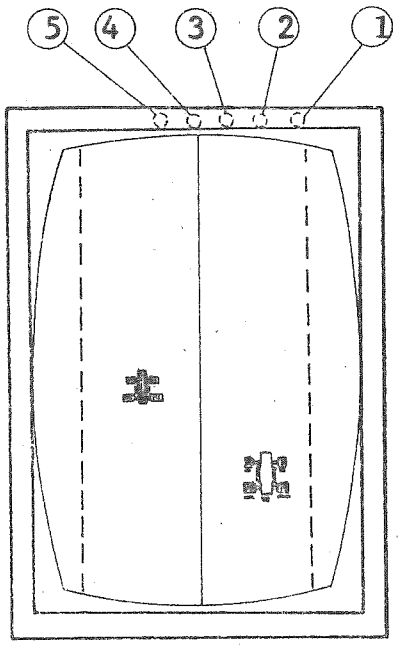
- The timer for the second player is independent of that for the first player, therefore, if the second coin is delayed inserting, it will result in no loss of the time for the second player.

- The other game features such as acceleration, crashing, and scoring are the same as that of the one-player game.

3. Adjustment

- TV Monitor

  TV monitor is duly adjusted before shipping, however, if necessary, readjust as follows:



(1) Brightness
(2) Contrast
(3) Vertical Hold
(4) Horizontal Hold
(5) Sound Volume

Fig. 3

- Sound Volume

  Adjust the control (5) so as to match the sound with the location.

- Screen Brightness

  Adjust the control (1) so that the screen field becomes dark, but not so dark as the player cannot see "Slip Zone".

- Screen Contrast

  When the contrast is intensified, the lower side of the car images will be distorted. Therefore, adjust the control (2) so as to keep the car images clear.

- When the voltage of the power source is low, the car images on the screen sometimes flicker. In such case, the vertical width of screen is also shrunken.

  Adjustment: Change the terminal of the power transformer in the cabinet according to the supply voltage. This can be made with the change-over switch.

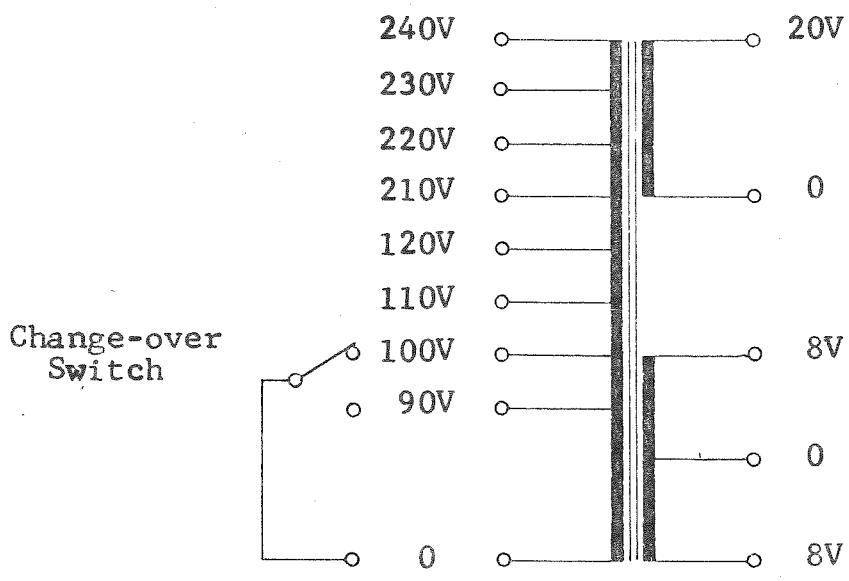


Fig. 5

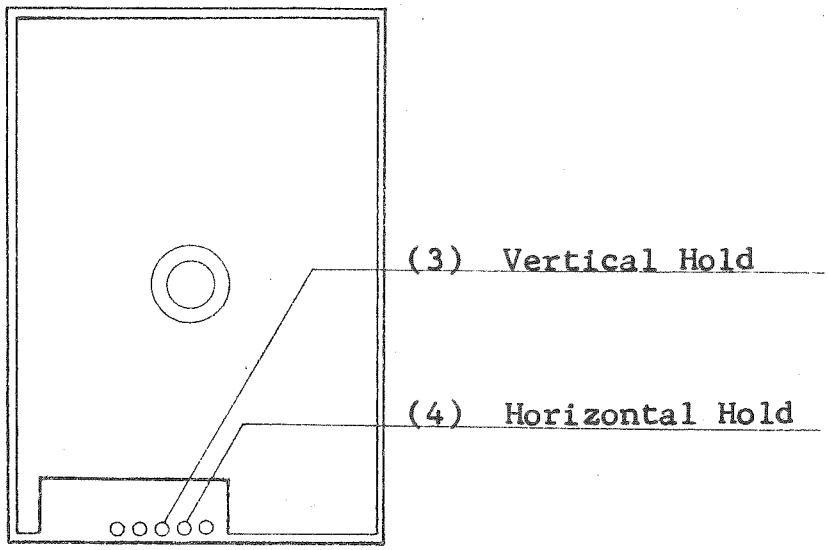


Fig. 4

When the picture on the screen rolls vertically or oblique lines appear on the screen, adjust it by turning the control knobs (see Fig. 4).

° Vertical Hold

When the picture on the screen rolls vertically, adjust it by turning the control (3) so that the picture-roll stops on the screen correctly.

° Horizontal Hold

When oblique lines appear on the screen, adjust it by turning the control (4) so that the course is located in the middle of the screen.

Adjustment for Main P.C. Board

The Main P.C. Board is adjusted before shipping, however, if necessary, readjust as follows:

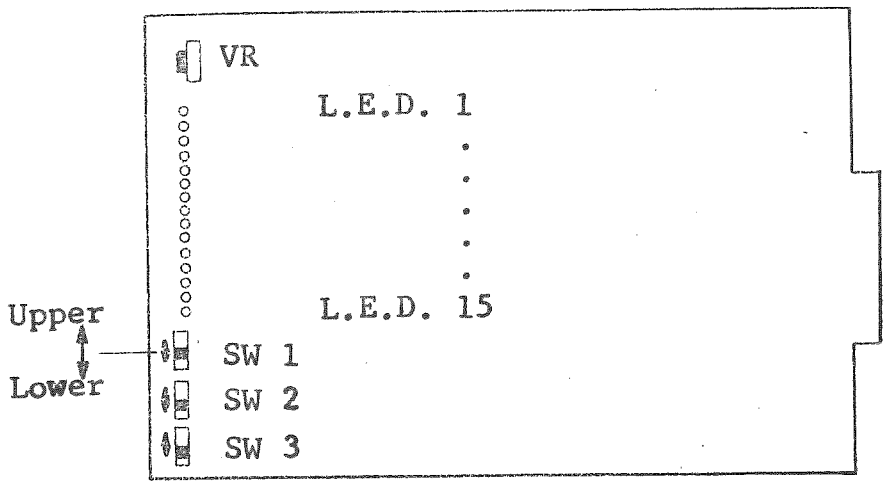


Fig. 6

- Playing Time

  Playing time is adjusted as to count down every one second. It can be increased or decreased by turning the potentiometer (VR).

- Forwarding Speed of Player's Car

  Forwarding Speed of player's car can be adjusted by positioning the lever of the switch (SW 2) as follows:

  Upper position: high speed
  Lower position: low speed

  The lever of the switch (SW 2) is set at lower position at the factory.

- Crash

  If the lever of the switch (SW 3) is set at upper position, no crash will occur. This switch is for servicing only, and set at lower position at the factory.

Function of LEDs (see Fig. 6)

L.E.D. 1: Showing the extended play for the second player.
(When going on, the L.E.D. 1 shows that the playing time for the second player is extended.)

L.E.D. 2: Showing the time pulse for the second player.
(When going on and off, the L.E.D. 2 shows that the timer and score board is signalled for counting down the time.)

L.E.D. 3: Showing the score pulse for the first player.
(When going on and off, the L.E.D. 3 shows that the timer and score board is signalled for scoring.)

L.E.D. 4: Showing the increase of racing cars.
(When went on, the L.E.D. 4 shows that the number of racing cars increases.)

L.E.D. 5: Showing the crashing of the second player car.
(When went on, the L.E.D. 5 shows that the sound board is signalled by crashing the second player car.)

L.E.D. 6: Showing the extended play for the first player.
(When going on, the L.E.D. 6 shows that the playing time for the first player is extended.)

L.E.D. 7: Showing the crashing of the second player car.
(When went on, the L.E.D. 7 shows that the sound board is signalled by crashing the first player car.)

L.E.D. 8: Showing the repelling of the second player car.
(When went on, the L.E.D. 7 shows that the sound board is signalled by repelling the second player car with obstacle tyre.)

L.E.D. 9: Showing the time pulse for the first player.
(When going on and off, the L.E.D. 9 shows that the timer and score board is signalled for counting down the time.)

L.E.D.10: Showing the score pulse for the second player.
(When going on and off, the L.E.D. 10 shows that the timer and score board is signalled for scoring.)

L.E.D.11: Showing that the first player car is passing through the slipping zone.
(When went on, the L.E.D. 11 shows that the second board is singalled for sounding that the first player car is passing through the slipping zone.)

L.E.D.12: Showing that the second player car is passing through the slipping zone.
(When went on, the L.E.D. 12 shows that the sound board is signalled for sounding that the second player car is passing through the slipping zone.)

L.E.D.13: Showing the repelling of the first player car.
(When went on, the L.E.D. 13 shows that the sound board is signalled by repelling the first player car with obstacle tyre.)

L.E.D.14: Showing the slipping sound of the second player car.
(When went on, the L.E.D. 14 shows that the sound player car is slipping on the slipping zone.)

L.E.D.15: Showing the slipping sound of the first player car.
(When went on, the L.E.D. 15 shows that the sound board is signalled for sounding that the first player car is slipping on the slipping zone.)

Adjustment for 1st and 2nd Player Cars

The potentiometers (VR1, VR2, VR3 and VR4) for positioning the first and the second player cars are located in the cabinet as shown in Fig. 8. These potentiometers are accessible by opening the front door.

Adjustment:

When the lever of the switch (SW1) is set at upper position (see Fig. 6), a black strip-pattern will appear on the screen.

With depressing the both accelerator pedals to the maximum, align the rear sides of the both player cars on the lower end line of the black strip-pattern by turning the potentiometers (VR1 and VR2) as shown in Fig. 7.

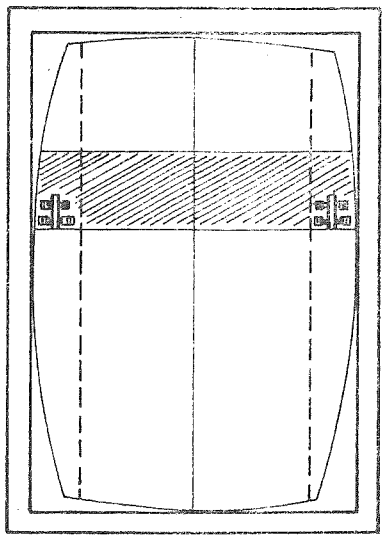


Fig. 7

After finished this adjustment, set back the lever of the switch (SW1) to lower position.

When the accelerator pedals are not depressed, if the cars not appear on the screen, adjust it by turning the potentiometers (VR3 and VR4) so that the cars are correctly positioned on the screen. (Use VR3 and VR4 only in this case.)

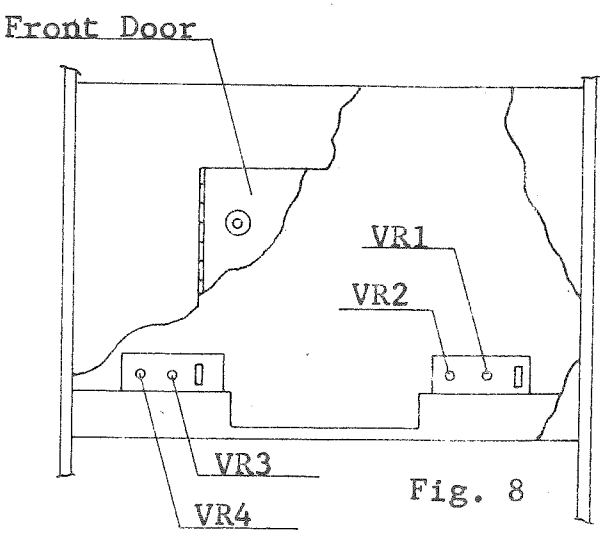


Fig. 8

Sound P.C. Board (Fig. 9)

Adjustment:

VR1: Sound for the second player
VR2: Sound for the first player

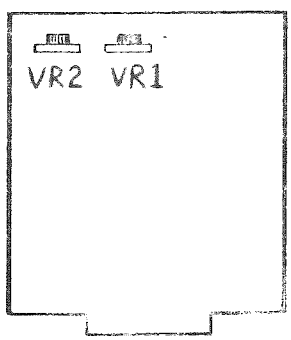


Fig. 9

4. Steering Wheel Mechanism

Shifting of player's car to left or right is made by pulses which are generated according to the rotation of the steering wheel. This mechanism is composed of two phototransistors and two LEDs (Light Emitting Diodes), facing each phototransistor and LED.

In addition, a rotating plate is arranged between the phototransistors and the LEDs. The detection of the shifing of player's car to left or right is made by two pulses generated by this mechanism. If the shifting is not normal when the steering wheel is turned to left or right, make sure that the two LEDs go on and off as shown below.

Note: These two LEDs should go and off as shown above whenever the steering wheel is turned clockwise or counterclockwise.

If the two LEDs do not go on and off as shown above, the P.C. Board of the steering wheel mechanism or the power circuit is assumed to be out of order. Check them.

If the shifting of player's car is not normal when the two LEDs go on and off as shown above, the harness, the P.C. Board of the steering wheel mechanism, or the Main P.C. Board is assumed to be out of order. Check them.

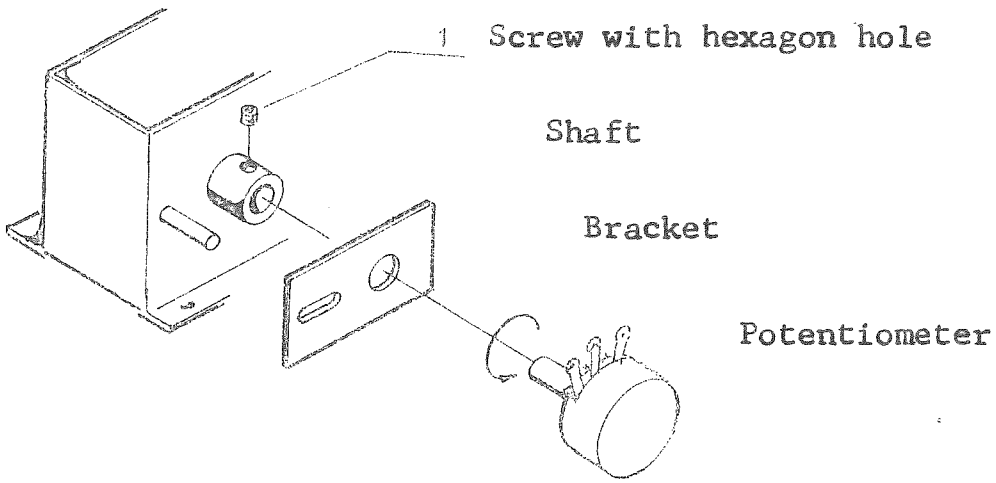
5. Acceleration Mechanism

When the accelerator pedal is depressed, the potentiometer rotates to start the player's car. Then, the player's car is accelerated automatically, and when the accelerator pedal is released, the player's car is decelerated.

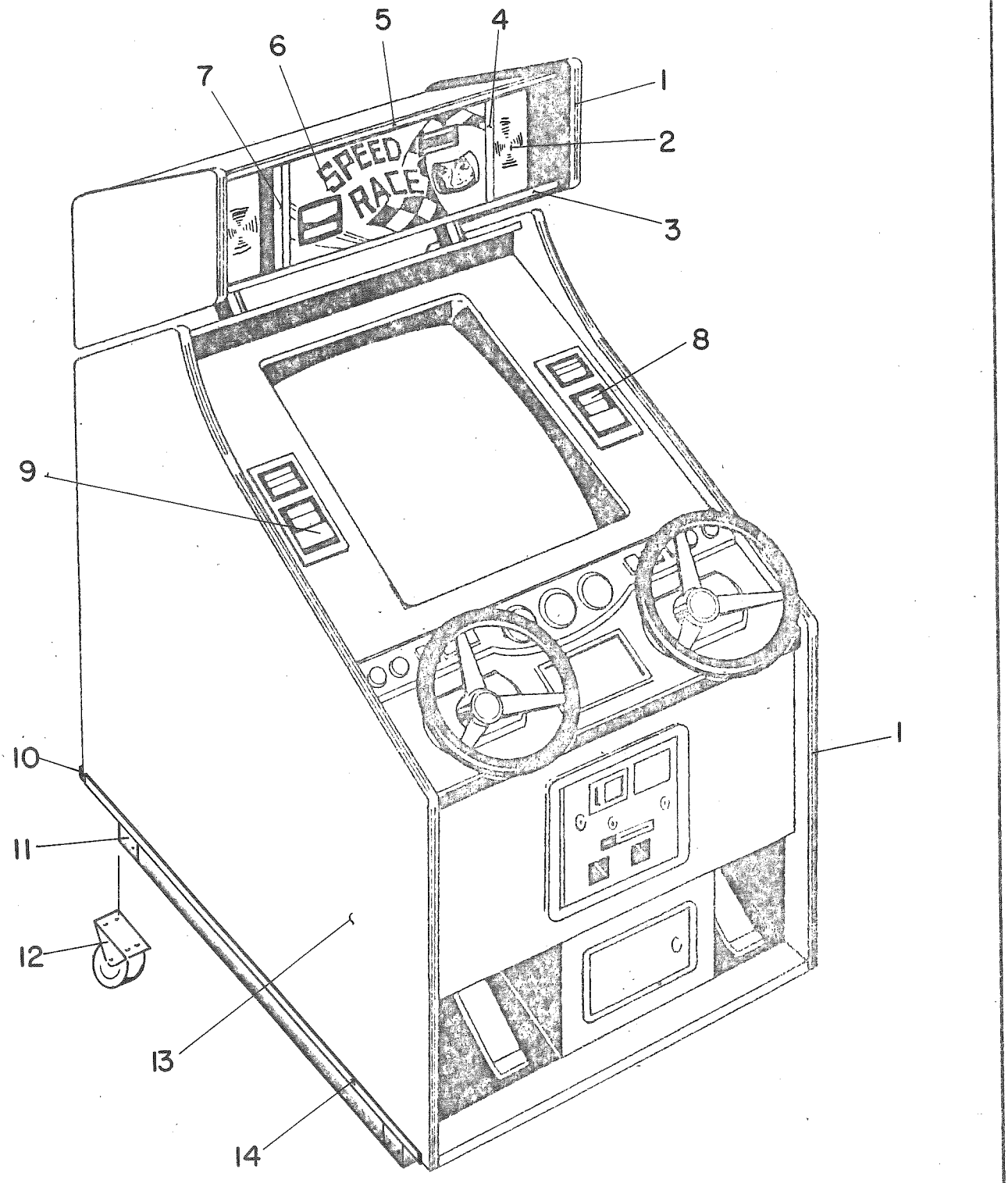
If the player's car is not accelerated smoothly, or it flickers, the potentiometer is assumed to be out of order. Check it.

Replacment of potentiometer:

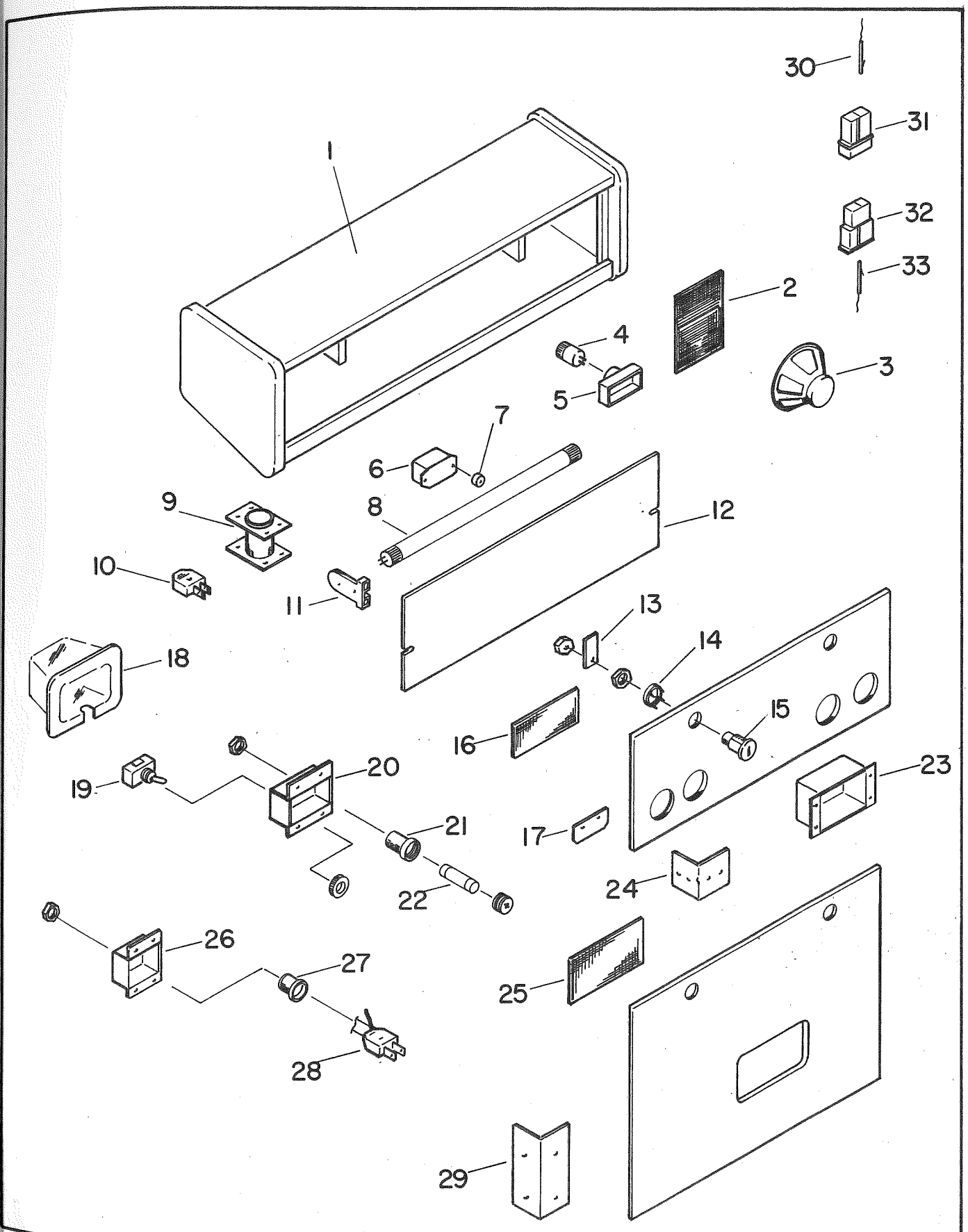
- Remove two screws (with hexagon hole), and the potentiometer and the bracket can be removed.
- Remove the wiring from the potentiometer, and replace the potentiometer with new one.
- Solder the wiring to the replaced potentiometer.
- Turn the new potentiometer fully counterclockwise, and turn back it slightly (approximately 2 degrees).
- Slowly insert the new potentiometer into the shaft, and thrust the two screws (with hexagon hole) into the shaft to fix the new potentiometer.



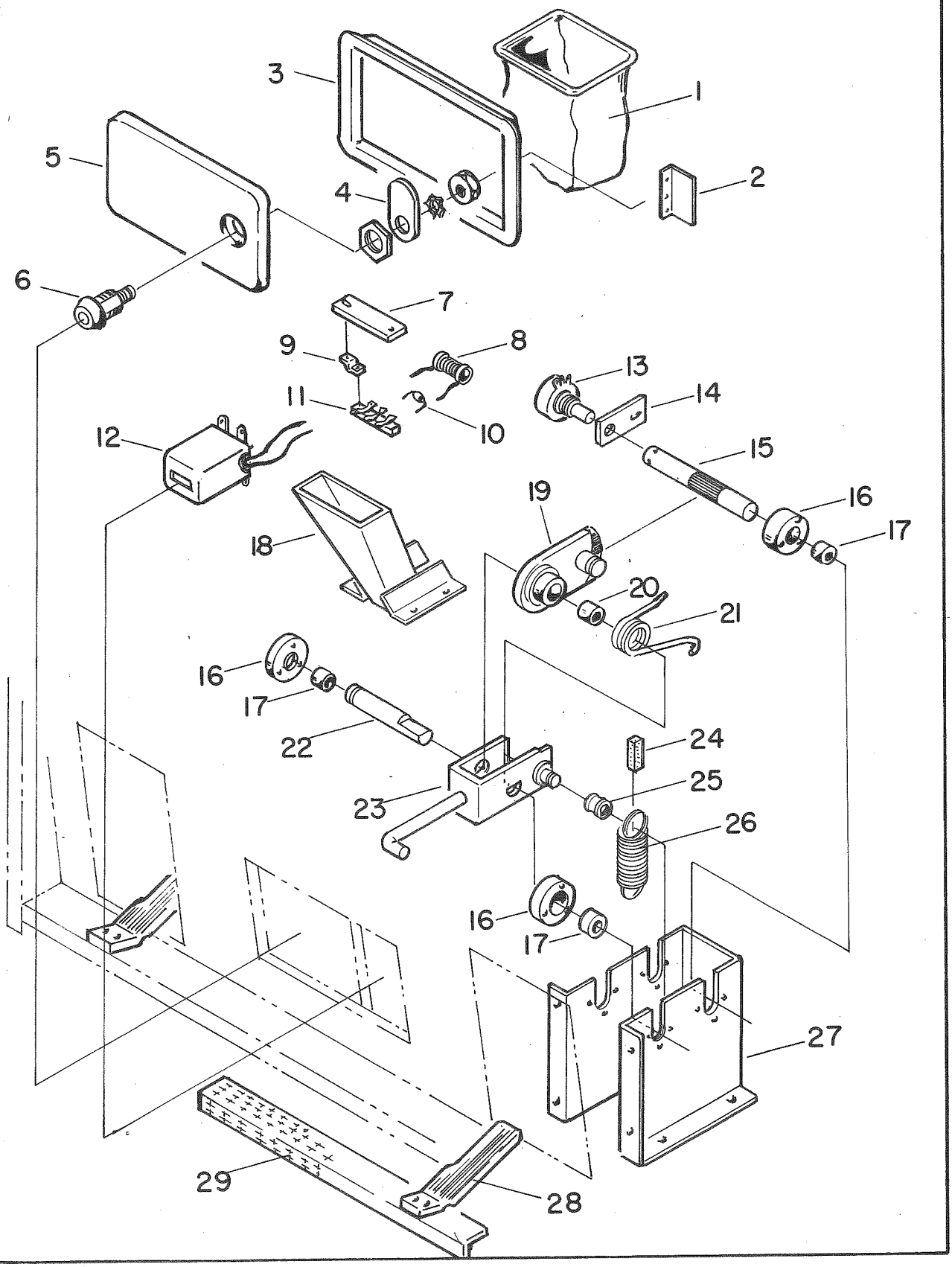
CABINET ACCESSORY ASS'Y



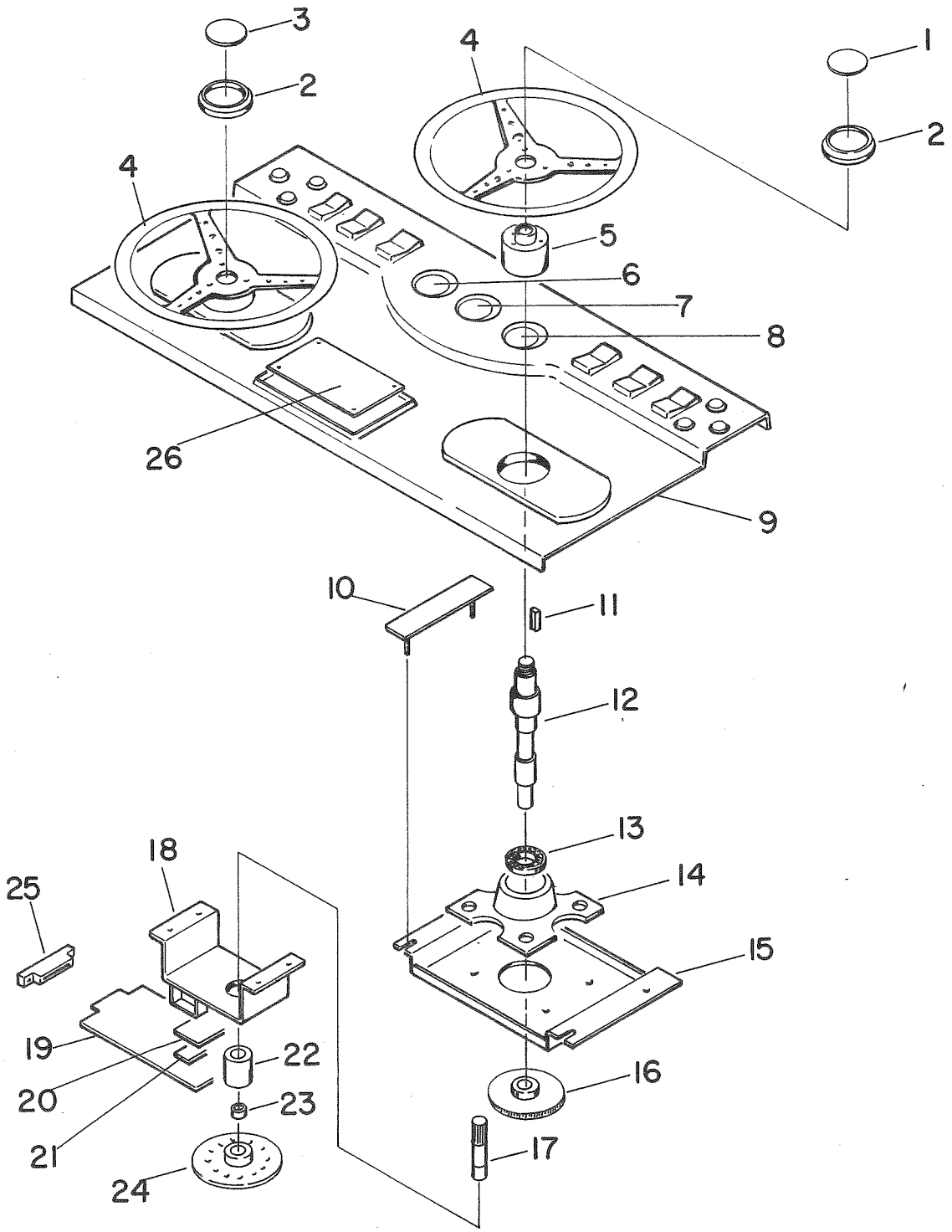
CABINET ASS'Y



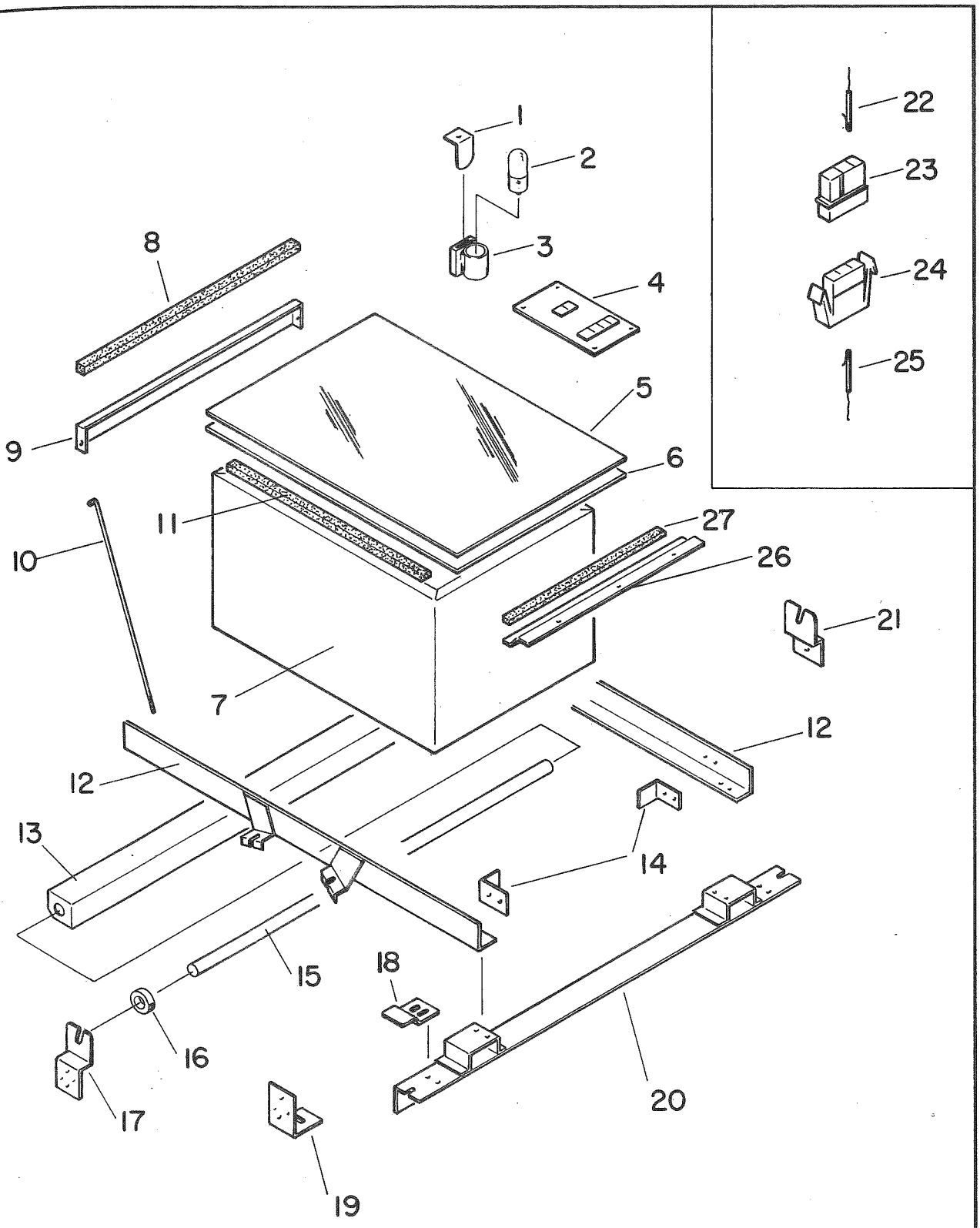
ACCELERATOR AND CASH BOX ASS'Y



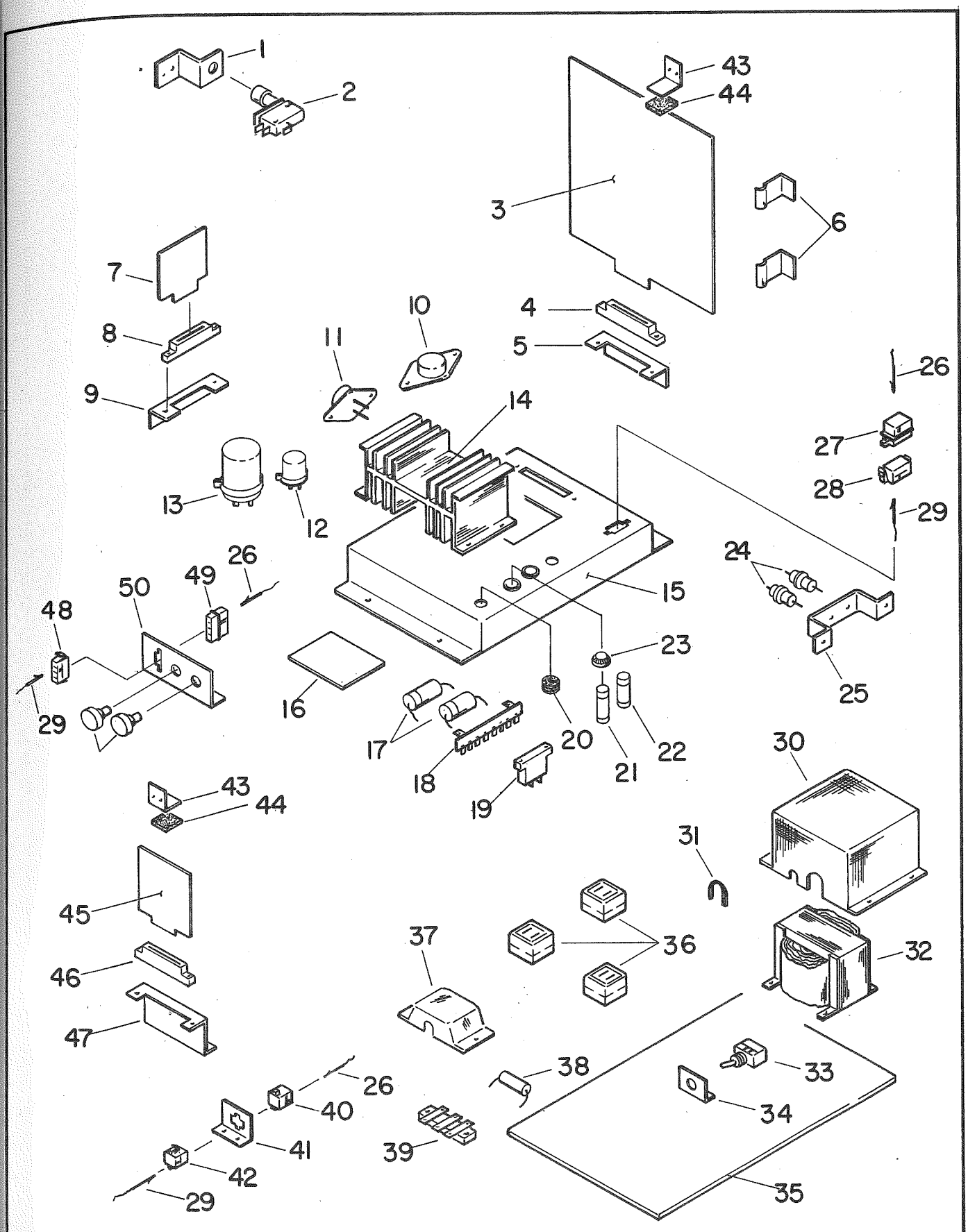
DASH BOARD ASS'Y



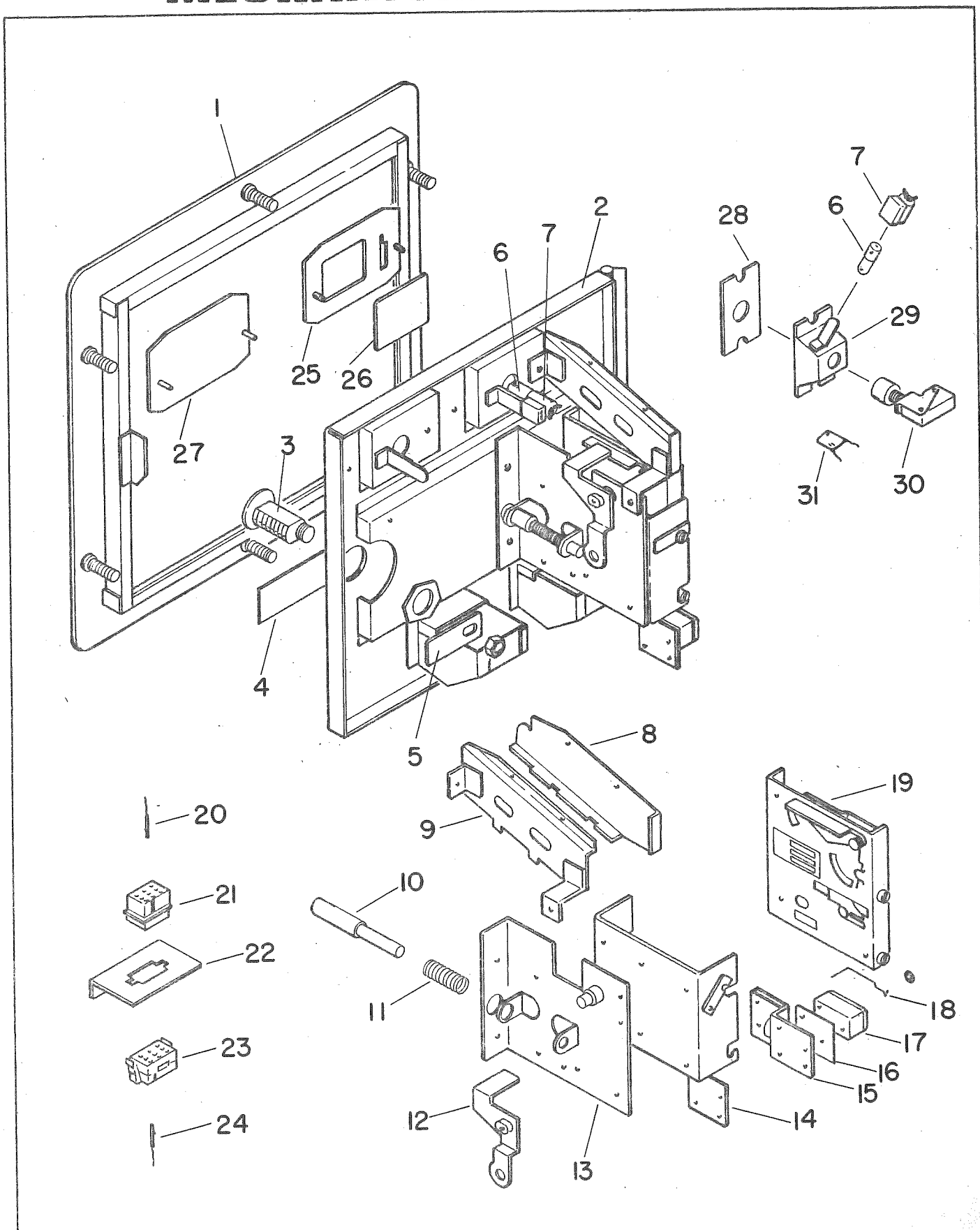
VIDEO ASS'Y



REGULATOR ASS'Y



FRONT DOOR AND COIN -MECHANISM ASS'Y



CABINET ACCESSORY ASS'Y

Item	Part №	Description
1	AAO14512	Edge
2	STO40003	Speaker Grill
3	STO30008	Edge (B)
4	STO30010	Edge (D)
5	STO30007	Edge (A)
6	STO70004	Title Plate
7	STO30009	Edge (C)
8	STO70005	Time & Score Plate (A)
9	STO70006	Time & Score Plate (B)
10	STO40002	Corner Protector (B)
11	AAO13519	Corner Bracket
12	AAO16513	Caster
18	STO10001	Cabinet
14	STO40001	Corner Protector (A)

CABINET ASS'Y

Item	Part №	Description
1	STO10002	Title Box
2	STO90003	Net
3	AAT71001	Speaker
4	AAO54720	Glow Lamp
5	AAO55695	Glow Socket
6	AAO57508	Ballast
7	AAO12510	Spacer
8	AAO54710	Fluorescent Lamp 10W

9	STO80001	Title Pole
10	AAO55713	A•C•Plug
11	AAO55694	F•L•Socket
12	STO10003	F•L•Board
13	AAO18510	Lock Plate
14	AAO18546	Lock Washer
15	AAO16537	Lock & Key #67609
16	STO80017	Ventilator
17	AAO18528	Door Stopper
18	AAO19519	Switch Cover
19	AAO52501	Switch
20	AAO18551	Switch Bracket
21	AAO55784	Fuse Holder
22	AAO68506	Fuse 8A
23	AAO18512	Cover
24	EPO80007	Support Bracket
25	EPO50010	Ventilator
26	AAO18558	Bracket
27	AAO89580	Mold Cord Bush
28	AAO62506	A•C•Cable & Plug Assy
29	SEO80010	Support Bracket
30	AAO55789	Mate — N — Lok Plug Pin
31	AAO55501	Mate — N — Lok Cap 2P
32	AAO55502	Mate — N — Lok Plug 2P
33	AAO55790	Mate — N — Lok Socket Pin

ACCELERATOR AND CASH BOX ASS' Y

Item	Part No.	Description
1	AAO28503	Cash Bage
2	STO30015	Lock Stopper Bracket
3	AAO26506	Cash Box Door Frame
4	AAO18511	Lock Plate
5	AAO26505	Cash Box Door
6	AAO16501	Lock & Key
7	AAO19509	Cover
8	AAT55033	Resistor 8Ω 2W
9	AAO18518	Cover Bracket
10	AAT12002	Diode V08C
11	AAO56511	Contact Strip Ass'y
12	AAO51615	Counter
13	AAT58029	Potentiometer
14	SEO30022	Plate
15	SEO20009	Pinion
16	SEO20008	Hub
17	AAO12542	Bushing
18	SPO30008	Coin Shute
19	SEO20007	Gear Ass'y
20	AAO12541	Bushing
21	SEO50003	Torsion Spring
22	SEO20010	Accelerator Shaft
23	SEO300-21	Accelerator Lever Ass'y
24	SEO90008	Felt Plug
25	SEO20006	Bushing
26	SEO50002	Extension Spring
27	SEO30017	Accelerator Frame

28	SPO90006	Accelerator Pedal
29	STO80016	Floor Metal Plate

DASH BOARD ASS'Y

Item	Part №	Description
1	STO70007	Decoration Plate (A)
2	SEO40004	Base Cover
3	STO70008	Decoration Plate (B)
4	SEO90004	Steering Wheel
5	SEO40003	Base
6	STO70010	Meter Sticker (B)
7	STO70011	Meter Sticker (C)
8	STO70009	Meter Sticker (A)
9	STO90004	Dash Board Panel
10	SPO80010	Lock Plate
11	SPO20010	Key
12	SPO20009	Shaft
13	AAO12526	Bearing
14	SPO40004	Steering Wheel Bearing
15	SEO30018	Platform Bracket
16	SEO20017	Gear
17	SEO20015	Gear
18	SEO80080	Platform Mounting Bracket
19	SEN00005	L•E•D P•C•Board Ass'y
20	SEO90005	Plate
21	SEN00004	Pulse P•C•Board Ass'y
22	SEO20016	Hub
23	AAO12545	Bearing

24	SEO30020	Disc Plate Ass'y
25	AAO55720	Connector 10P
26	STO70012	Instruction Plate

V I D E O A S S ' Y

Item	Part No.	Description
1	SPO30029	Lamp Bracket
2	AAO54704	Lamp
3	AAO55698	Lamp Socket
4	SEN00002	Timer & Score P•C•Board Ass'y
5	STO90001	Front Glass
6	STO90002	Color Plate
7	AAO69585	Video
8	STO80002	Sponge Rubber Bumper (B)
9	STO30014	Lock Bracket
10	STO20008	Video Bar
11	STO80001	Sponge Rubber Bumper (A)
12	STO30004	Side Frame
13	STO30002	Angle base (F)
14	STO30012	Stopper Bracket
15	STO20002	Shaft
16	STO20001	Collar
17	STO30006	Base Bracket (R)
18	STO20013	Hook Plate
19	STO30011	Base Bracket

20	STO80008	Angle Base (R)
21	STO80005	Base Bracket (L)
22	AAO55789	Mate — N — Lok Plug Pin
23	AAO55521	Mate — N — Lok Cap 8P
24	AAO55522	Mate — N — Lok Plug 8P
25	AAO55790	Mate — N — Lok Socket Pin
26	STO80018	Glass Retaining Plate
27	STO80008	Spong Rubber

REGULATOR ASS'Y

Item	Part No.	Description
1	AAO18552	Switch Bracket
2	AAO52511	Switch
8	STN00001	Main P•C•Board
4	AAO55775	Connector 56P
5	STO80019	Connector Bracket
6	DKO50001	Stopper
7	AAM50008	Credit P•C•Board
8	AAO55721	Connector 14P
9	STO80020	Connector Bracket
10	AAT11039	Transistor
11	AAT81012	Regulator
12	AAT41182	Capacitor
18	AAT41186	Capacitor
14	AAO69519	Heat Sink

15	SEO80024	Chassis
16	DAN00010	Regulator P•C•Board Ass'y
17	AAT41139	Capacitor
18	AAO56528	Contact Strip Ass'y
19	AAT14002	Rectifier
20	AAO18508	Grommet
21	AAO63508	Fuse 15A
22	AAO68503	Fuse 2A
23	AAO55700	Fuse Holder
24	AAT12024	Diode 12cc12
25	SEO80027	Mounting Bracket
26	AAO55789	Mate — N — Lok Plug Pin
27	AAO55621	Mate — N — Lok Cap 15P
28	AAO55622	Mate — N — Lok Plug 15P
29	AAO55790	Mate — N — Lok Socket Pin
30	WNO80010	Transformer Cover
31	AAO69525	Grommet
32	AAO57533	Transformer
33	AAO52585	Switch
34	SEO80028	Switch Bracket
35	CRO10005	Regulator Board
36	AAO55715	A•C•Socket
37	AAO19520	Cover
38	AAT41194	Capacitor
39	AAO56511	Contact Strip Ass'y 8P
40	AAO55581	Mate — N — Lok Cap 9P
41	AAO18527	Socket Bracket

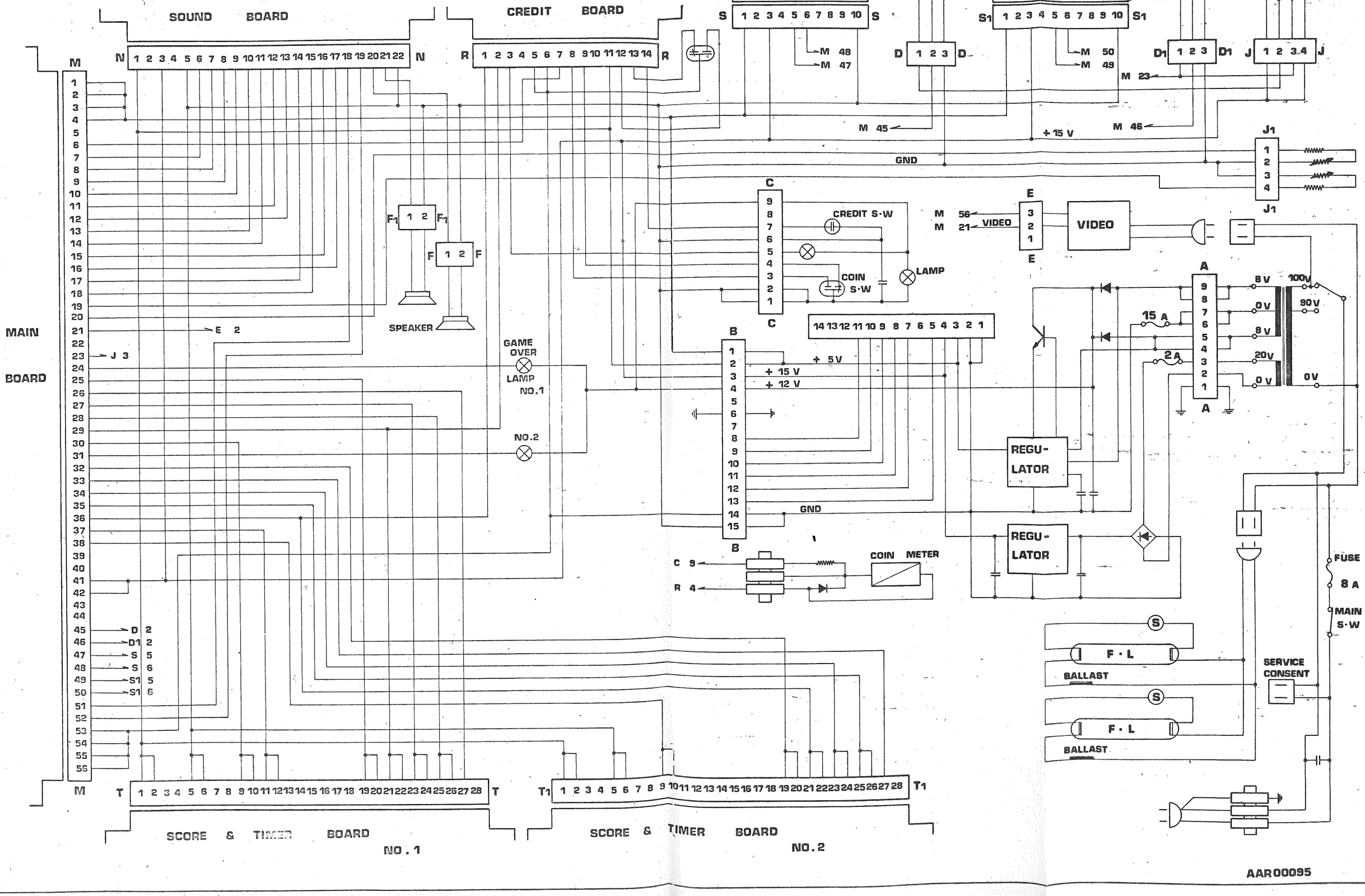
42	AAO55582	Mate—N—Lok Plug 9P
43	SPO30027	Stopper
44	SPO80004	Rubber
45	STN00002	Sound P•C•Board
46	AAO55728	Connector 22P
47	WNO30011	Connector Bracket
48	AAO55542	Mate—N—Lok Plug 4P
49	AAO55541	Mate—N—Lok Cap 4P
50	AVO30001	Bracket
51	AAT53021	Potentiometer

FRONT DOOR AND COIN MECHANISM ASS'Y

Item	Part №	Description
1	AAO26502	Door Frame
2	AAO26509	Front Door
3	AAO16586	Lock & Key №7600
4	AAO17705	Name Plate
5	AAO18510	Lock Plate
6	AAO54704	Lamp 12V 150mA
7	AAO55698	Lamp Socket
8	AAO25508	Coin Guide B
9	AAO25507	Coin Guide A
10	AAO27504	Push Button
11	AAO15504	Spring
12	AAO18557	Scavenger

13	AAO18554	Mounting Bracket
14	AAO28501	Slug Rejector Mounting Bracket Ass'y
15	AAO25503	Coin Guide
16	AAO19502	Insulator
17	AAO52512	Switch C-5G3-8
18	AAO58501	Actuater
19	AAO22503	Slug Rejector ¥100
20	AAO55789	Mate-N-Lok Plug Pin
21	AAO55581	Mate-N-Lok Cap 9P
22	AAO18527	Socket Bracket
23	AAO55582	Mate-N-Lok Plug 9P
24	AAO55790	Mate-N-Lok Socket Pin
25	AAO21583	Coin Entry Plate
26	AAO29508	Price Label ¥100
27	AAO21580	Coin Sheld Plate
28	AAO19521	Credit Plate
29	AAO18555	Switch Bracket
30	AAO52511	Switch
31	AAT41241	Capacitor TDY-1H-333

TAITO SPEED RACE TWIN



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